

Impact of ICD-10 on Washington State Mortality Trends

Center for Health Statistics, Washington State Department of Health, January 20, 2004

Beginning with deaths occurring in January 1999, the United States began using International Classification of Diseases (ICD-10) to classify causes of death reported on death certificates. ICD-9 had been used during 1979-1998. Implementation of ICD-10 has had an important impact on the presentation and interpretation of mortality statistics by cause-of-death. The change to ICD-10 has created a discontinuity in trends that must be accounted for when comparing mortality for 1999 and later years to prior years. To put it another way, current **cause-of-death data are not comparable to years prior to 1999**, unless adjustments are made for the coding and classification changes. Without adjustment, it is impossible to know whether an observed increase or decrease in deaths due to a particular cause is “real” or merely the result of the changes in classification and coding.

Some of the differences between ICD-10 and ICD-9 are:

- ICD-10 is far more detailed and has about 8,000 categories compared to ICD-9 with 5,000 categories.
- ICD-10 uses 4-digit alphanumeric codes that begin with a letter compared to ICD-9 which has 4-digit numeric codes.
- Additional chapters have been added and some have been rearranged. For example, myelodysplastic syndromes have been moved into the neoplasm chapter which has caused an increase in the number of benign neoplasms and neoplasms of uncertain or unknown behavior. Transient ischemic attacks (TIA) are now grouped with nervous system diseases rather than with strokes.
- Tabulation lists with groups of ICD codes have changed. More conditions are included in the lists used to determine leading causes of death and some of the groups of conditions have changed. For example, accidents and adverse effects were combined in ICD-9 tabulation lists. With ICD-10, accidents and adverse effects are now in separate categories.
- Coding rules for causes of death have changed. For example, pneumonia is now considered a direct sequel of more conditions which has led to a 30% decrease in pneumonia as an underlying cause-of-death.

To enable comparisons across the ICD-9 to ICD-10 transition, a preliminary comparability study was carried out by the National Center for Health Statistics (NCHS). NCHS double-coded a large sample of the 1996 national mortality file, once by ICD-9, and again by ICD-10. A **comparability ratio** was then calculated by dividing the number of deaths for a selected cause of death classified by ICD-10 by the number of deaths classified to the most nearly comparable cause of death by ICD-9. The resulting ratio can be used to **adjust** counts and rates for a given cause of death classified by ICD-9 so they are comparable to those for the most similar cause classified by ICD-10. The ratio will also allow users to estimate the extent of the discontinuity of the change to ICD-10 by showing the net effect of coding and classification changes. The preliminary comparability study will be followed by a comparability study based on the complete national mortality file in 2004.

In order to compare rates or counts coded by ICD-9 with rates or counts coded by ICD-10, multiply the ICD-9 count or rate by the cause specific comparability ratio. For example, there were 1,717 deaths due to pneumonia and influenza to residents of Washington State in 1998 (ICD-9 480-487). In 1999, 1,258 residents of Washington State died due to pneumonia and influenza (ICD-10 J10-J18). Comparing these counts leads to a conclusion that there was a very large drop in deaths due to pneumonia and influenza. This conclusion is incorrect: By multiplying the 1998 count of 1,717 times the comparability ratio of 0.70, the comparability modified number of deaths in 1998 would be 1,202. Comparing the modified count in 1998 of 1,202 to the ICD-10 count in 1999 of 1,258 shows an increase of only 56 deaths in from 1998 to 1999 instead of a large decrease.

For more information about ICD-10:

Washington State Vital Statistics ICD-10 Supplement, 1990-1999; Center for Health Statistics, Washington State Department of Health, PO Box 47814, Olympia, WA 98504-7814

National Center for Health Statistics web site: <http://www.cdc.gov/nchs/about/major/dvs/icd10des.htm>